

## **CLAIMS**

1. A computerized method for controlling parallel distributed processes in a manufacturing environment, the method comprising the steps of:

providing a plurality of places associated with a plurality of process conditions, wherein each place has at most one input path and one output path;

providing a token for identifying the status of at least one of the plurality of process conditions;

connecting the places with a plurality of arcs, the arcs adapted for identifying a route for each token, and wherein each place includes at most one input path and one output path;

identifying conditions from the plurality of process conditions for each token to advance along one of the paths to a different place.

2. The method of claim 1 further comprising the steps of:

providing a plurality of transitions associated with at least one of the plurality of processes, but separate from the places;

wherein the places and transitions are interconnected with the plurality of arcs and wherein each transition can have a plurality of input paths and/or output paths.

3. The method of claim 1 wherein the manufacturing environment is a semiconductor fab, and where each of the transitions represents a semiconductor processing operation and an associated computer/data collection process.

4. A computer-implemented job flow system for use in a manufacturing environment, the system comprising a plurality of sequence-related jobs associated with manufacturing and computer-controlled Petri Net (PN) structure comprising:

a plurality of agents associated with each of the sequence-related jobs;  
a plurality of application processes to be performed by the agents;  
one or more description files; and  
a PN Center for loading the one or more description files and activating a first agent to perform one or more of the application processes in response to the one or more description files and in response to status information from at least one of the application processes.

5. The system of claim 4 wherein the application processes support a plurality of batch jobs, each of the batch jobs being responsive to a transition start synchronization received from the PN Center and following a PN Center's request to either process or sleep.

6. The system of claim 4 wherein the computer-controlled Petri Net structure further comprises:

a remote controller adapted for remote user control of the PN Center.

7. The system of claim 4 wherein the computer-controlled Petri Net structure further comprises:

a remote controller adapted for automated control of the PN Center.

8. The system of claim 7 wherein the remote controller is a separate system from the PN center and wherein the remote controller and the PN center share information through a network.

9. The system of claim 7 wherein the remote controller includes a graphical user interface (GUI) program which can be used to start a job, query a job running status, and maintain the description file by sending a request command to the PN Center.

10. The system of claim 4 wherein the description file includes a job flow Petri Net description file.

11. The system of claim 4 wherein the description file includes a plurality of Petri Nets.
12. The system of claim 4 wherein the plurality of agents are configured to receive a request from the PN Center to activate the application processes.
13. A computer program stored on a recordable medium and for use in monitoring and controlling a plurality of computer-controlled semiconductor data collection/summary processes, the computer program including instructions for:
  - reporting the process status to a PN Center, the PN Center providing requests to the plurality of computer-controlled semiconductor data collection/summary processes; and
  - activating transitions associated with a PN description file, the transitions activated by the PN Center and associated with the plurality of computer-controlled semiconductor data collection/summary processes.